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Leptospirosis – can it be a sexually transmitted disease?

N.A. Harrison and W.R. Fitzgerald[1]

Renal Unit, Princess Mary's Royal Air Force Hospital, Halton, Aylesbury, Bucks HP22 5PS and [1]Royal Air Force Hospital Wegberg, BFPO 40, West Germany

Summary: Person to person spread of leptospirosis has not been previously reported. We describe two cases occurring in a man and wife which tantalisingly raise this possibility.

Introduction

Leptospirosis has until now been regarded as a zoonosis, and person to person spread has not been reported. We report on two cases occurring in a man and wife which raise both this possibility, and that of sexual transmission.

Case report

On 2nd September 1985, an airman was canoeing in rat infested waters, whilst his wife watched from the bank. Ten days later he developed a febrile illness with severe myalgia, anorexia and headache, and over the next 4 days became jaundiced. His illness lasted 18 days, and resolved spontaneously by 30 September. During his illness, liver function tests revealed a mild hepatitis: bilirubin 82 U/l, aspartate transaminase 189 U/l, alanine transaminase 62 U/l, alkaline phosphatase 284 U/l (normal 39–117), gamma-glutamyl transferase 81 U/l (normal 7–35). Blood was sent for leptospira titres. On 1 October, his wife developed a similar febrile illness with low back pain, severe myalgia, vomiting, diarrhoea and headache. She was admitted to Royal Air Force Hospital Wegberg with dehydration, and an initial diagnosis of gastroenteritis. Her liver function tests were also mildly abnormal (bilirubin 24 U/l, alkaline phosphatase 199 U/l, gamma-glutamyl transferase 37 U/l). She also recovered spontaneously without any specific treatment.

Serology was positive in both, for *Leptospira interrogans*, and indicated an identical serotype, icterohaemorrhagiae. Microscopic agglutination tests were strongly positive for icterohaemorrhagiae – husband 1/5120 (recovery), wife 1/5120 (acute and recovery). Enzyme linked immuno-sorbent assay IgM was positive at 1/5120 in both patients.

Discussion

Leptospirosis is a zoonosis, man being infected through his association with animals, or their environments. The icterohaemorrhagiae serotype is usually contracted following exposure to rat urine, the incubation period ranging from 2 days to 3 weeks, with an average of 10 days.[1] This is followed by a disease of varying severity, from a mild non-specific illness to classical Weil's disease. It characteristically runs a bi-phasic course,[2] with 'flu-like' symptoms in the first week coincident with a leptospiraemia. After 1–3 days without fever there follows the 'immune phase' when antibodies to leptospirae become detectable in the blood. Spirochaetes can be isolated from blood and cerebrospinal fluid during the leptospiraemic phase. In the immune phase leptospirae are said to disappear from all tissues except the aqueous humour and kidneys,[2] and leptospiriuria develops.[3]

How can the relationship between these two cases be explained? If identical serotypes of leptospira have similar incubation periods, it would indicate that the wife was *not* infected at the same time as her husband. If this is so, then how and when was she infected? Exposure to leptospirae in her immediate living environment was unlikely. She had no contact with animals during this period, and did not handle the wet canoeing clothing. The temporal relationship between the cases however, begs another possibility, that of person to person spread. Leptospirae have been isolated from blood, cerebrospinal fluid, sputum and urine.[4] It is not known whether they exist in other body fluids such

Correspondence: Squadron Leader N.A. Harrison, M.R.C.P., R.A.F.
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as semen or prostatic secretions. However, venereal transmission occurs in some rodents, and may occur in humans.[5]

In the latter stages of the husband's illness, intimate relations did occur between them. So assuming leptospiriuria to have been present during the husband's convalescence (not proven due to the mild nature of his illness), then the organism could have been present in the husband's urethra, and have been expelled by the ejaculate, thus gaining entry to the wife per vagina. If leptospirae occur in semen, then this would be even more tenable. That person to person spread has not been reported cannot deny its existence. The evidence is circumstantial, but appears to be the most likely explanation in this case.

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